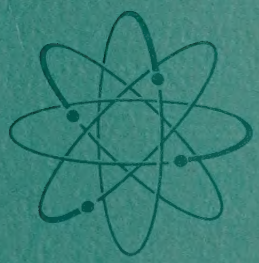
T.E.

FIELD POWER SUPPLY

LTV
LING-TEMCO-VOUGHT, INC.

LING
ELECTRONICS DIVISION

# INSTRUCTION MANUAL



*Model*

# FIELD
# POWER SUPPLY

IN ALL CORRESPONDENCE WITH THE FACTORY BE SURE TO INCLUDE THE FOLLOWING INFORMATION:

EQUIPMENT MODEL NUMBER

SERIAL NO. 14

LING NO. 42521

LTV LING ELECTRONICS Division
LING-TEMCO-VOUGHT, INC.
1515 So. Manchester Avenue
Anaheim, California

PSE-15-1

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# FIELD POWER SUPPLY INSTRUCTION MANUAL

## 1-1. INTRODUCTION

This field power supply instruction manual contains a general description of the standard Ling field power supply models. The specifications and appropriate schematic number of each standard field power supply are included with this instruction manual.

## 1-2. GENERAL DESCRIPTION (refer to the field power supply schematic)

a. The basic field power supply is a three phase, full wave semi-conductor, bridge rectifier designed to energize the pole pieces of a field winding located in an electrodynamic shaker. Some field power supplies provide an extra current output to energize a degauss winding located on the electrodynamic shaker.

b. The three phase, nominal 480 vac, 60 cps power input is applied to a step-down transformer. In most field power supplies, the primary of the step-down transformers has taps to match input voltages from 420 vac through 480 vac to the nominal input voltage required by the field power supply. If taps are provided, the input lines to the step-down transformer must be changed to the taps that will provide the closest match for the input voltage. The three phase input power is rectified by the full wave bridge circuit. The output current of the bridge rectifier is filtered by a single large capacitor. A resistor, in series with the capacitor, limits surge currents. When power is removed, a resistor across the output provides a discharge path for the filter capacitor. In some models a potentiometer, labeled DEGAUSS ADJ, permits adjustment of the current level to the degauss winding.

c. Power control is normally provided by a contactor-circuit breaker arrangement in the field power supplies. For field power supplies mounted as an integral component of some unit of the Vibration Test System, the contactor and circuit breaker are part of the power control circuit of the system cabinet. For chassis mounted field power supplies, the circuit breaker is mounted on the chassis and no contactor is used. When the field power supply is mounted in a separate cabinet, the contactor and circuit breaker are mounted in the field power supply cabinet. Connections are provided to the system power control circuits for sequential application of power to the field power supply. Interlock contact outputs are provided to the Vibration Test System to disable the power control circuit when the field power supply cabinet door is opened.

d. Manual or motor driven variacs are supplied on some models to vary the field power supply output current level.

## 1-3. FIELD POWER SUPPLY MOUNTING

The field power supply may be housed as part of a Vibration Test System cabinet, or separately mounted on a chassis, or mounted in a separate cabinet. Reference designations used to identify the type of mounting are listed below. Dash numbers identify modifications to the original mounting design.

(1). PS-000-0: indicates field power supply is mounted as an integral part of the Vibration Test System cabinet.

(2). PS-000R-0: indicates field power supply is mounted on a separate chassis.

(3). PSE-000-0: indicates field power supply is mounted in a separate cabinet.

## 1-4. REFERENCE DATA FOR STANDARD UNITS

Nominal Power Input (all units) 420 vac through 480 vac, 3 phase, 60 cps

| UNIT | SCHEMATIC NUMBER | INPUT KVA | OUTPUTS | | |
|---|---|---|---|---|---|
| | | | NOMINAL FIELD VOLTAGE | NOMINAL FIELD CURRENT | DEGAUSS CURRENT |
| PS-L200 | * | 36 | 275 | 120 | -- |
| PSE-L200 | 41969 | 36 | 275 | 120 | -- |
| PS-249 | 30008 | 48 | 215 | 200 | 3.5 |
| PSE-249 | 43502 | 48 | 215 | 200 | 3.5 |
| PS-275 | * | 25 | 220 | 105 | -- |
| PSE-275 | 43808 | 25 | 220 | 105 | -- |
| PS-280R | 30002 | .8 | 90 | 8.4 | -- |
| PS-290 | 32448 | 3.4 | 120 | 25 | .5 |
| PS-290R | 32400 | 3.4 | 120 | 25 | .5 |
| PS-295 | 32723 | 5.5 | 125 | 40 | -- |
| PS-300 | * | 25 | 90 | 250 | 1.1 |
| PSE-300 | 41859 | 25 | 90 | 250 | 1.1 |
| PS-310A | 43718 | 25 | 90 | 250 | 1.1 |
| PS-330 | * | 28 | 60 | 425 | 1.1 |
| PSE-330 | 43174 | 28 | 60 | 425 | 1.1 |
| PS-335 | * | 64 | 145 | 400 | 1.1 |
| PSE-335 | 43897 | 64 | 145 | 400 | 1.1 |
| PS-350 | none | 55 | 200 | 250 | 1.1 |

*Field power supply schematic part of schematic of a unit of the Vibration Test System - refer to system unit schematic for details.

## 1-5. REFERENCE DATA FOR SPECIAL UNITS

| UNIT | SCHEMATIC NUMBER | INPUT KVA | OUTPUTS | | |
|---|---|---|---|---|---|
| | | | NOMINAL FIELD VOLTAGE | NOMINAL FIELD CURRENT | DEGAUSS CURRENT |
| PS-10R | 33008 | 2.0 | 230 | 8 | --- |
| PS-25 | * | 2.9 | 230 | 10 | 1.6 |

*Field power supply schematic part of schematic of a unit of the Vibration Test System - refer to system unit schematic for details.

60 CPS

# ENGINEERING PARTS LIST

DATE 5-26-61 PAGE 1 MANUAL
REV. C CONT'D ON 6 REQUISITION NO.

| MODEL OR ASSY. | SERIAL NO. | SHOP ORDER | PCN | QTY. | ACCOUNT NO. | M-DAY | DAT |
|---|---|---|---|---|---|---|---|
| PSE-330 | 14 | 3687 | 42521 | | | | |

| REV. | ITEM | *R.S. | SYMBOL DESIG. | STOCK/DWG NUMBER | DESCRIPTION | MFG CODE | MANUFACTURER PART NUMBER | QTY. ASSY. | QTY. UNIT | O D F | KARDEX | PURCH ORDE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 43174 | Schematic | | | - | - | | | |
| | | | | 5930 | Modification & Layout | | | - | - | | | |
| | | | | 42501 | Control Panel (Engrave per 42502) | | | 1 | 1 | | | |
| | | | | 42502 | Engraving Control Panel | | | - | - | | | |
| | | | | 31035 | Panel Inside upper left | | | 1 | 1 | | | |
| | | | | 32201 | Panel Inside lower left | | | 1 | 1 | | | |
| | | | | 21698 | Bracket Resistor Mtg. | | | 3 | 3 | | | |
| | | | | 21699 | Bracket Contactor Mtg. | | | 2 | 2 | | | |
| A | | | | 32131 | Floor Plate | | | 1 | 1 | | | |
| C | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

*R.S. - RECOMMENDED AS CUSTOMER SPARES

DEPARTMENT | ISSUED BY | ISSUE DATE

60 CPS

# ENGINEERING PARTS LIST

DATE 2-2-62 PAGE 2 MANUAL
REV. 0 CONT'D ON 3 REQUISITION NO.

| MODEL OR ASSY. | SERIAL NO. | SHOP ORDER | PON | QTY. | ACCOUNT NO. | MOD |
|---|---|---|---|---|---|---|
| PSE-330 | | | | | | |

| REV. | INEC. M | *R.S. | SYMBOL DESIG. | STOCK/DWG NUMBER | DESCRIPTION | MFG CODE | MANUFACTURER PART NUMBER | QTY. ASSY. | QTY. UNIT | CODE | KARDEX | PURCH ORD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 82119-0003 | Frame | STAN | F400-25 | 1 | 1 | | | |
| A | | | | 82500-0003 | Side Panel (LH) | STAN | S400-25-L-LH | 1 | 1 | | | |
| A | | | | 82500-0004 | Side Panel (RH) | STAN | S400-25-L-RH | 1 | 1 | | | |
| | | | | 82500-0005 | Front Panel, Lower | STAN | P24 | 1 | 1 | | | |
| | | | | 82120-0001 | Door (LH) | STAN | D200-38-L-LH | 1 | 1 | | | |
| C | | | | 82500-0006 | Top Panel | STAN | P15P | 1 | 1 | | | |
| C | | | B1 | 80153-0003 | Blower | DA | 2C610 | 1 | 1 | | | |
| | | | | | | | | | | | | |
| | | | | 1025 | Clip | | - | 6 | 6 | | | |
| | | | | 21617 | Nameplate | | | 1 | 1 | | | |
| B D | | | | 82460-0034 | Spacer, Blower Mtg. | AMATOM ELEC | 8795-A-1032-17 | 4 | 4 | | | |
| | | | | | | | | | | | | |

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# ENGINEERING PARTS LIST

DATE 2-2-62 PAGE 3 MANUAL
REV. D CONT'D ON 7 REQUISITION NO.

| MODEL OR ASSY. | SERIAL NO. | SHOP ORDER | PON | QTY. | ACCOUNT NO. | M-DAY | DATE |
|---|---|---|---|---|---|---|---|
| PSE 330 | | | | | | | |

| REV. | ITEM | *R.S. | SYMBOL DESIG. | STOCK/DWG NUMBER | DESCRIPTION | MFG CODE | MANUFACTURER PART NUMBER | QTY. ASSY. | QTY. UNIT | CODE | KARDEX | PURCHASE ORDER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | | | | 82012-0019 | Bracket, Capacitor Mtg. | SA | Type 15 | 1 | 1 | | | |
| | | | | 82287-0003 | Door Switch Cover | MS | 5PA3 | 1 | 1 | | | |
| | | | | 80143-0011 | Fuse Clip | IL | C15 | 6 | 6 | | | |
| | | | | 80115-0001 | Knob | GR | KNS-12 | 1 | 1 | | | |
| | | | | 82180-0004 | Standoff | | | 6 | 6 | | | |
| A | | | C1 | 82049-0053 | Capacitor 350 μf 350V | SA | 539-2748-01 | 1 | 1 | | | |
| D | | | CR1 | PS 10797 | Rectifier Stack | | | 1 | 1 | | | |
| C | | | F1 | 82145-0038 | Fuse, S1B-B1B 1 Amp 3AG | LI | 313001 | 1 | 1 | | | |
| C | | | XF1 | 80143-0009 | Fuse Post 100-125V | LI | 344125 | 1 | 1 | | | |
| | | | K1 | 82291-0018 | Contactor | CL | 77A32-16 | 1 | 1 | | | |
| | | | M1 | 82361-0011 | Meter Field use w/ext. Shunt Panel Alum 500 ADC 50 MV | GE | DO 91 514 x 26 | 1 | 1 | | | |
| | | | M2 | 82360-0013 | Meter Degauss 0-1.5 ADC | GE | DO 91 512 x 60 | 1 | 1 | | | |

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| DEPARTMENT | ISSUED BY | ISSUE DATE | P |
|---|---|---|---|
| | | | |

# ENGINEERING PARTS LIST

DATE 12-2-65 PAGE 4 MANUAL
REV. — CONT'D ON 5 REQUISITION NO.

| MODEL OR ASSY. | SERIAL NO. | SHOP ORDER | PON | QTY. | ACCOUNT NO. | M-DAY | DATE |
|---|---|---|---|---|---|---|---|
| PSE 330 | | | | | | | |

| NEW | REV. | *R. S. | SYMBOL DESIG. | STOCK/DWG NUMBER | DESCRIPTION | MFG CODE | MANUFACTURER PART NUMBER | QTY. ASSY. | QTY. UNIT | CODE | KARDEX | PURCHASE ORDER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | R1 | 82211-T500K | Rheostat<br>50 ohm 50W Dual | O | 0318-6601 | 1 | 1 | | | |
| | | | R2 | 82244-0501J | Resistor<br>500 ohm 25W | O | 0202 | 1 | 1 | | | |
| | | | R3,R4, R5 | 82242-0P15J | Resistor RBFlex<br>0.15 ohm 375W | WL | WL-D-Dore | 3 | 3 | | | |
| | | | R6 | 82300-0009 | Shunt<br>500 ADC 50 MV | WE | 282640 | 1 | 1 | | | |
| | | | R7 | 82237-0010J | Resistor<br>1 ohm 10W | O | 1-3/4-D-48F | 1 | 1 | | | |
| | | | S1 | 82285-0004 | Door Switch | MS | BZ7RQ1T | 1 | 1 | | | |
| | | | S2 | 82085-0009 | Breaker | HE | 3X1163S-40-460-C3 | 1 | 1 | | | |

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# ENGINEERING PARTS LIST

DATE 2-26-63 PAGE 5 MANUAL
REV. A CONT'D ON - REQUISITION NO.

| MODEL OR ASSY. | SERIAL NO. | SHOP ORDER | PON | QTY. | ACCOUNT NO. | M-DAY | DATE |
|---|---|---|---|---|---|---|---|
| PSE 330 | | | | | | | |

| REV. | ITEM | *R.S. | SYMBOL DESIG. | STOCK/DWG NUMBER | DESCRIPTION | MFG. CODE | MANUFACTURER PART NUMBER | QTY. ASSY. | QTY. UNIT | SDF | KARDEX | OLD HAS ORDER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | | | T1 | PT-615 | Transformer | | | 1 | 1 | | | |
| | | | TB1 | 80112-0094 | Output Block | AB | 1492-400YF | 2 | 2 | | | |
| A | | | TB2 | 80112-0022 | Barrier Strip | CJ | 10-142 | 1 | 1 | | | |
| | | | TB2 | 80113-0001 | Marker Strip | CJ | MSX-10-142 | 1 | 1 | | | |
| A | | | TB3 | 80112-0005 | Barrier Strip | CJ | 2-142 | 1 | 1 | | | |
| A | | | TB3 | 80113-0002 | Marker Strip | CJ | MSX-2-142 | 1 | 1 | | | |

*R.S. - RECOMMENDED AS CUSTOMER SPARES

DEPARTMENT | ISSUED BY | ISSUE DATE

# CODE TO MANUFACTURERS

| | |
|---|---|
| AA | AIR ASSOCIATES |
| AB | ALLEN BRADLEY |
| AC | ASTRON CORPORATION |
| ACDC | ACDC ELECTRONICS |
| AD | ADVANCE RELAY |
| AD-YU | AD-YU LABS |
| ADEL | ADEL |
| ADMS | ADAMS & WESTLAKE |
| AH & H | ARROW-HART & HEGEMAN |
| AI | AIRCRAFT |
| AIRM | AIR MARINE PRODUCTS |
| ALB | ALBION |
| ALL | ALLIS CHAMBERS |
| AMC | AMSCO |
| AME | AMPERITE CO. |
| AMM | AMMON INSTRUMENTS INC. |
| AMP | AMPHENOL |
| AMPX | AMPEX |
| AP | AIR PAX |
| APH | ALPHA |
| API | AMERICAN PAMCOR INC. |
| AQ | AEROQUIP |
| AR | AEROVOX |
| ARCO | ARCO ELECTRONICS |
| ARM | ARMSTRONG CORK CO. |
| AS | ASSOCIATED SPRING |
| ASP | ASSEMBLY PRODUCTS |
| ATLE | ATLEE |
| AUTO | AUTOMATIC ELECTRIC |
| BAS | BASSICK |
| BC | BARBAR COLMAN |
| BECK | BECKMAN INSTRUMENTS |
| BEL | BELDEN |
| BEN | BENDIX |
| BG | BOSTON GEAR |
| BI | BIRNBACH |
| BIRT | BIRTCHER |
| BO | BODINE |
| BOU | BOURNS "TRIMPOT" |
| BOW | BOWERS |
| BP | BOGEN-PRESTO |
| BRE | BREEZE "AERO SEAL" |
| BRY | BRAYANT |
| BUD | BUD |
| BUCH | BUCHANAN |
| BUG | BUGGIE |
| BUR | BURROUGHS |
| BUSS | BUSSMAN MFG. |
| B & K | BRUEL & KJAER |
| C | CHATHAM |
| CA | CARLING ELECTRIC |
| CAL | CALIDYNE |
| CALC | CALIFORNIA CHASSIS |
| CAN | CANNON |
| CCI | CONTINENTAL CARBON, INC. |
| CD | CORNELL DUBILIER |
| CH | CHICAGO STANDARD TRANS. |
| CHD | CROUSE HINDS |
| CHSH | CHASE-SHAWMUT |
| CI | CINEMA |
| CJ | CINCH-JONES |
| CK | CONROY & KNOWLTON |
| CL | CLARK CONTROLER CO. |
| CLAR | CLAROSTAT |
| CM | COMPUTER MEASUREMENTS |
| COR | CORNISH |
| CP | COMMUNICATION PROD. |
| CRA | CRAMER |
| CRAF | CRAFTSMAN |
| CRIT | CRITTENDEN |
| CRL | CENTRALAB |
| CRN | CRANE |
| CT | CHASSIS TRAK |
| CTS | CH. TELE SUPPLY |
| CU | CURTIS |
| CUT | CUTLER HAMMER |
| D & H | D & H AWNING |
| DA | DAYTON |
| DALE | DALE |
| DECO | DEECO |
| DEFT | DEECO FELT |
| DELR | DELRY |
| DI | DIALITE CORP. (DIALCO) |
| DICO | DIAMOND MFG. (DICO) |
| DM | DIAMOND METAL |
| DRAK | DRAKE - ATWOOD |
| DUC | DUCOMMON |
| DUM | DUMOND |
| DY | DYMEC |
| ECK | ECKTRONICS |
| ED | EDCLIFF INST. |
| EEW | ELECTRO ENG. WORKS |
| EF | ELECTRO FAB. |
| EI | EIMAC |
| EM | ELECTRO-MEASUREMENTS |
| ELCO | ELCO |
| ELME | ELMENCO |
| ELTC | ELECTRAC |
| EMC | EMCOR |
| EMEC | EMEC |
| EMP | EMPCO |
| ENDV | ENDEVCO |
| EP | ENGINEERING PROD. |
| ER | ERIE |
| ERA | ELECTRONIC RESEARCH ASSOC. |
| ERC | ELECTRA RESISTOR CORP. |
| ES | EAGLE SIGNAL |
| ESCO | ELECTOR-SWITCH CORP. |
| ESX | ESSEX |
| EVER | EVEREST |
| F | FENWAL |
| FAN | FANSTEEL |
| FED | FEDERATED |
| FED-S | FEDERAL SCREW |
| FEI | FEDERAL ENTERPRISE, INC. |
| FF | FEDERAL FASTENING |
| FP | FISHER-PORTER |
| FR | FRANZ |
| FU | FULLER |
| ITT | FEDERAL (IT & T) |
| G | GRAYBAR |
| GA | GATES |
| GAXY | GALAXY |
| GC | GENERAL CEMENT |
| GCON | GENERAL CONTROL |
| GE | GENERAL ELECTRIC |
| GLA | GEELAR |
| GL | GLOBAR |
| GR | GENERAL RADIO |
| GRHL | GRAYHILL |
| GRIS | GRIGSBY CO. |
| GU | GUDEMAN |
| GV | G. V. CONTROL |
| HAW | HARTWELL |
| HAYS | HAYS MFG. |
| HE | HEINEMANN |
| HEY | HEYCO |
| HP | HEWLETT PACKARD |
| HGR. | H. G. REISING |
| HL | HELIPOT |
| HOF | HOFFMAN |
| HOP | HOPKINS |
| HS | HARDWARE SPEC. |
| HU | HUBBEL |
| HY | HYCOR |
| HYD | HAYDON |
| IGNS | INGERSOL RAND |
| IL | ILSCO |
| ILG | ILG |
| IMP | IMPERIAL |
| INSU | INSULINE |
| IRC | INT. RESISTOR CORP. |
| IREC | INT. RECTIFIER CORP. |
| IS | INSULATION SUPPLY |
| ITE | ITE CIRCUIT BREAKER |
| J | JOHNSON |
| JAN | JAN HARDWARE MFG. |
| JE | JEFFERSON |
| JEN | JENSEN |
| K | KIERLUFF |
| KENR | KEINER |
| KH | KRON-HITE |
| KING | KING |
| KT | KOOLTRONIC |
| KU | KULKA |
| KZ | KURZ-KASCH |
| LA | LYNCH ASBESTOS |
| LAMB | LAMBDA |
| LAR | L. A. RESISTOR |
| LE | LEACH |
| LER | LERCO |
| LI | LITTLE FUSE |
| LING | LING ELECTRONICS DIV. |
| LMB | LMB |
| LP | LAPP |
| LPD | LA-DEAU PROD. |
| LUNK | LUNKENHEIMER |
| M | MILLEN |
| MA | MALLORY |
| MD | MICRODOT |
| ME | METTSCRAFT |
| MEC | MEC |
| MH | MINNEAPOLIS HONEYWELL |
| MICA | MICAMOLD |
| MIN | MINARIK |
| ML | MACHLETT |
| MLR. | MILLER CO. |
| MMN | MARMON |
| MN | MARION |
| MOD | MODULONICS |
| MON | MONITOR |
| MOSE | MOSELEY |
| MOSS | MOSSMAN |
| MRC | MARCO |
| MRY | MURRAY |
| MS | MICROSWITCH |
| MTRO | MOTOROLA |
| N | NATIONAL CO. |
| NC | NATIONAL WIRE & CABLE |
| NE | NETWORK MFG. |
| NEI | NATIONAL ELECTRONICS INC. |
| NEP | NATIONAL ELECTRICAL PROD. |
| NHBB | NEW HAMPSHIRE BALL BEARING |
| NIBCO | NORTHERN INDIANA BRASS |
| NL | NATIONAL LOCK |
| O | OHMITE |
| OZ | O.Z. ELECTRICAL MFG CO. |
| PAN | PANDUIT |
| PANX | PANDUX |
| PCA | PCA |
| PE | PEERLESS |
| PENN | PENN CONTROL |
| PER | PERMOID |
| PH | PHILLIPS CONTROL (PHILTROL) |
| PHIL | PHILBRICK RESEARCH |
| PREM. | PREMIER METAL PROD. |
| PRKR | PARKER ELECTRICAL INST. |
| PRYN | PRYNE |
| PTB | POTTER - BRUMFIELD |
| PY | PYRAMID |
| QE | QUALITY ELECTRIC |
| R | ROTRON |
| RAY | RAYTHEON |
| RBC | RUBBERCRAFT |
| RCA | RADIO CORP. OF AMER. |
| RCC | RADIO CONDENSER CO. |
| RDL | RADIO DEVELOPMENT LAB |
| RE | REPUBLIC GLASS |
| REN | RENBRANDT |
| ROB | ROBERTSHAW-FULTON CON. |
| ROME | ROME |
| RT | RATIGAN |
| RY | RYTRON |
| S | SIMPSON |
| SA | SANGAMO |
| SAR | SARAN |
| SE | SERVICE |
| SEL | SELCO |
| SEP | STANDARD ELECT. PROD. |
| SH | SHALL CROSS |
| SI | SIGMA |
| SIE | SOUTHWESTERN IND. ENG. |
| SKT | SARKES TARZIAN |
| SK | SPENCER-KENNEDY-LABS. |
| SM | STANLEY MORRIS |
| SMC | SPECIALTIES MFG. |
| SMI | SMITH HERMAN |
| SOLA | SOLA ELECTRIC |
| SOR | SORENSON |
| SP | SPRAGUE |
| SPR | SUPREME |
| SQ | SQUARE D |
| SR | SIERRA ELECT. CORP. |
| SREC | STANDARD RECTIFIER |
| SS | SPECTRA-STRIP |
| STAH | STAHLIN BROS. |
| STAN | STANTRON |
| STIM | STIMSON, E.B. |
| STW | STANDARD WIRE & CABLE |
| SU | SUPERIOR ELECTRIC |
| SUPT | SUPRENANT |
| SW | SWITCHCRAFT |
| SW-CT | SWITCHING CONTROL |
| SWGL | SWAGELOCK |
| SY | SYLVANIA |
| T | TRIAD |
| T & B | T & B (CONNECTORS) |
| TH | THERMADOR |
| TI | TEXAS INSTRUMENT |
| TIC | TECHNOLOGY INST. CORP. |
| TNG | TUNGSOL |
| TR | TRUMBEL |
| TRAN | TRANSELECTRONICS |
| TRE | TRERICE |
| TRIM | TRIMM |
| TRID | TRID LABS. INC. |
| TX | TEKTRONIX |
| UI | UNISTRUT |
| ULAN | ULANET CO., GEO. |
| UN | UNIMAX |
| USDC | U. S. ELECT. DEVEL. |
| USEC | U. S. ENG. CO. |
| USG | U. S. GAUGE |
| UTAH | UTAH |
| UTC | UNITED TRANSFORMER |
| VAL | VALOR INSTRUMENTS INC. |
| WA | WALSCO |
| WAFD | WAKEFIELD ENGR. |
| WAT | WATERS |
| WB | WARNER BRAKE |
| WC | WEST COAST (WESCO) |
| WE | WESTINGHOUSE |
| WEL | WELWYN |
| WES | WESTON |
| WH | WAHLGREN |
| WHD | WEATHERHEAD |
| WHIT | WHITLOCK |
| WIN | WINCHESTER |
| WK | WECKESSER |
| WL | WARD LEONARD |
| WP | WESTCAP |
| WRMD | WIRE MOULD |
| WRNE | WESTERN ELECTRIC |
| WSPT | WESTPORT |
| WYCO | WYCO METAL PROD. |
| YO | YOUNG RADIATOR |

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